

## CLAIMS

What is claimed is:

1. An in-vivo system comprising:
  - an in vivo device, said device comprising:
    - 5 an illumination source and a detector to collect reflected light; and
    - a processor to, based on signals from the detector, determine a location of the in-vivo device.
  2. The system according to claim 1, wherein said detector is configured to receive light from a body lumen wall.
  - 10 3. The system according to claim 1, wherein said processor is configured to indicate a movement of said in-vivo device from one area to another.
  4. The system according to claim 1, wherein said processor is configured to indicate a movement from a relatively small diameter lumen into a larger diameter lumen.
  - 15 5. The system according to claim 1 wherein the in vivo device comprises an imager.
  6. The system according to claim 5, wherein said detector is located at a location of said in-vivo device such that illumination generated from said illumination source and reflected from a body lumen wall to said detector is not received at 20 the imager.
  7. The system according to claim 1, wherein said detector is selected from the group consisting of: a CMOS, a CCD and a photodiode.
  8. The system according to claim 1, comprising a primary light source and a dedicated light source.
  - 25 9. The system according to claim 8 wherein the primary light source illuminates a body lumen for imaging said body lumen and wherein the dedicated light source illuminates a body lumen for locating the in vivo device.

10. The system according to claim 8 wherein the primary light source is positioned behind an optical window in the in vivo device.
11. The system according to claim 5, wherein said imager is a detector.
12. The system according to claim 1, wherein said processor is disposed within said  
5 in-vivo device.
13. The system according to claim 1, wherein said processor is external to the in-vivo device
14. The system according to claim 1, wherein said processor is a controller.
15. The system according to claim 1, comprising a controller, wherein said  
10 controller is configured to receive signals from said detector and to trigger an event to occur within said in-vivo device.
16. The system according to claim 1 comprising a transmitter.
17. The system according to claim 1, wherein said in-vivo device is a swallowable capsule.
- 15 18. A method for locating an in vivo device, the method comprising:  
illuminating a body lumen wall;  
receiving light reflected from the body lumen wall;  
determining a location of the in vivo device, based on comparing received light to a predetermined threshold.
- 20 19. The method according to claim 18 comprising:  
transmitting light from behind an optical window in an in-vivo sensing device; the window shielding an imager;  
receiving reflected light by a detector, wherein said detector does not detect light through said optical window ; and  
25 determining the location of the device, based on comparing received light to a predetermined threshold.
20. The method according to claim 18, wherein said comparing comprises comparing the quality of said reflected light to a predetermined threshold.

- 21.The method according to claim 18, wherein said comparing comprises comparing the quantity of said reflected light to a predetermined threshold.
- 22.The method according to claim 18, comprising sending a signal if a change in said reflected light is determined, to a unit selected from the group consisting of:
  - 5 a reception unit, a processing unit and an operator unit.
- 23.The method according to claim 18, comprising initiating an event if there is a change in said reflected light according to a comparison to the pre-determined threshold.
- 24.The method according to claim 18, comprising changing a mode of operation if
  - 10 there is a change in said reflected light according to a pre-determined threshold.
- 25.The method according to claim 18 comprising:
  - transmitting light from a dedicated light source in an in-vivo sensing device, wherein said dedicated light source is located so as not to illuminate through an optical window of said device;
  - 15 receiving reflected light by a detector; and
  - determining the location of the device, based on comparing received light to a predetermined threshold.
- 26.The method according to claim 18, comprising initiating a mode change based on comparing received light to a predetermined threshold.
- 20 27.The method according to claim 26 wherein said mode change includes a change selected from the group consisting of: commanding said device to transmit images, instructing said device to deliver medication or take samples, changing the focus of an imager, releasing a chemical and shutting down or pausing imaging.
- 25 28.The method according to claim 18, comprising changing a mode of operation based on comparing received light to a predetermined threshold.